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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TITLE: APPARATUS FOR IMPROVED VOLLEYBALL TRAINING

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## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention generally relates to the practice of volleyball, and more particularly, to a device that provides a highly effective and efficient way for volleyball players of all skill levels to improve their offensive and defensive skills. The present device also provides for highly efficient volleyball practices by allowing several players to perform quality practice repetition at the same time; the device further allows separate groups of players to practice at different locations simultaneously.

### 2. Background Information

Volleyball is a widely popular sport, played and watched by millions of people the world over. In fact, the sport itself transcends different cultures, age groups, and sexes. For example, volleyball is so popular that both men and women's volleyball qualifies as an Olympic sport, drawing participation from national teams all over the world. However, this is not the end of the story. Volleyball is also played at the professional, colligate, and interscholastic level. In fact, youth of all ages and

1 from all over the world, play volleyball for club teams,  
2 city leagues, and in scholastic competition.  
3 Interestingly, the success of an individual volleyball  
4 player, and likewise the team they play for, can be put in  
5 fairly simple terms. That is, the success of a volleyball  
6 team largely depends on its overall ability to "spike" and  
7 defend against, or block, the "spike." The term "spike"  
8 refers to the complicated maneuver consisting of approaching  
9 the ball, jumping, and striking the ball in a generally  
10 downward motion. This maneuver is meant to create great  
11 acceleration of the ball and render any defense futile.  
12 Spiking the volleyball is so important that a team's  
13 offensive scheme is structured so as to score mostly by  
14 performing this complex maneuver. On the offensive side, a  
15 volleyball team is typically coordinated so as to provide  
16 its players the best and most frequent opportunities to  
17 spike the ball. A volleyball team is comprised of a group  
18 of "setters" and "spikers." Setters are largely responsible  
19 for feeding the ball to the spikers, who are aligned along  
20 the net. Not surprisingly, the defensive strategy of a  
21 volleyball team largely revolves around defending against  
22 the spike. As a result of the above, volleyball teams

1 dedicate a tremendous amount of time to improving their  
2 overall ability to spike and defend against the spike.

3 In view of above, the ability to spike and defend the  
4 spike is of the utmost importance. However, as with any  
5 learned skill, the only way to improve is to practice.  
6 Teams with the best method for practicing the art of spiking  
7 and blocking will have the greatest chance for winning. As  
8 such, the team that can provide its players with the most  
9 effective and the most numerous practice repetitions will  
10 provide the best opportunities for its players to improve.

11 However, perfecting the art of spiking and blocking is  
12 not straightforward. There are several components of both  
13 techniques that can only be perfected through numerous  
14 repetitions. For example, effective spiking and blocking  
15 depends on proper footwork, body position, timing, and  
16 placement along the net. As such, both techniques are best  
17 learned through the employment of an effective practice  
18 scheme that can repeatedly incorporate all of the mentioned  
19 aspects of these learned skills.

20 Devices for helping players improve their volleyball  
21 skills are known in the art. However, these devices are not  
22 as effective, and are largely limited in view of the present  
23 device. For example, patent number 4,881,742 (the '742

1 patent) teaches a stationary trainer, but this device is  
2 limited to use by only one player, and is not portable.  
3 Unlike the present device, the '742 patent does not provide  
4 a device that is conducive to simultaneous offensive and  
5 defensive practice as the ball is mounted to a "semi-rigid  
6 tether." Therefore, the '742 patent does not match the  
7 increase in the efficiency of volleyball practice offered by  
8 the present invention. Patent number 4,948,150 (the '150  
9 patent) also teaches a device for practicing volleyball.  
10 However, unlike the present device, the device of the '150  
11 patent is also not portable and is limited to use by only  
12 one person at a time. Therefore, neither device can come  
13 close to matching the increase in practice efficiency  
14 produced by the present device. Finally, unlike the present  
15 device, no product known in the art is conducive to allowing  
16 several players to perfect their offensive and defensive  
17 players skills at the same time.

18 In light of the enormous popularity of volleyball, the  
19 essential need to master the art of spiking and defending  
20 the spike to succeed at volleyball, and the shortcomings of  
21 the products known in the art, there is a tremendous need  
22 for a product that will allow volleyball players at all  
23 stages of development to improve their skills.

1 Particularly, a device is needed for improving spiking and  
2 blocking in a highly efficient, effective, and cost  
3 effective manner.

#### 4 SUMMARY OF THE INVENTION

5 In view of the foregoing, it is an object of the present  
6 invention to provide a device that allows volleyball players  
7 to improve their offensive playing skills

8 It is another object of the present invention to provide  
9 a device that allows volleyball players to improve their  
10 defensive playing skills

11 It is another object of the present invention to provide  
12 a device that allows for more efficient volleyball practice  
13 sessions

14 It is another object of the present invention to provide  
15 a device that allows more than one group of players to  
16 practice simultaneously

17 It is another object of the present invention to provide  
18 a device that allows separate practice groups to practice in  
19 different practice locations simultaneously

20 It is another object of the present invention to provide  
21 a device that allows for fast and efficient repetition of the  
22 particular skills being taught

1           It is another object of the present invention to provide  
2 a device that may be used by individuals of all ages and skill  
3 levels

4           It is another object of the present invention to provide  
5 a device that is highly efficient yet cost effective

6           It is yet another object of the present invention to  
7 provide a device that allows for volleyball players to  
8 improve their physical conditioning

9           In satisfaction of these and related objects, the present  
10 device provides a highly efficient, highly effective, and cost  
11 effective device to help volleyball players at all skill  
12 levels improve their playing ability. Practice of the present  
13 device involves a series of volleyballs suspended in a linear  
14 fashion from a substantially horizontal support beam. This  
15 horizontal support beam is attached, at each end, to vertical  
16 support beams that are anchored by a base. Importantly, the  
17 height of the horizontal support beam, and likewise the height  
18 of the suspended volleyballs, can be adjusted according to the  
19 height and vertical ability of the active players. The  
20 volleyballs are attached to the support beam so that their  
21 motion upon impact is not hindered, yet, these balls are  
22 attached so that they return to their initial position without  
23 requiring retrieval by players or coaches. The alignment of

1 the volleyballs is important because it allows separate lines  
2 of players to approach each ball and execute the spike  
3 maneuver while allowing separate lines of players to defend  
4 against each corresponding player attempting to spike the  
5 ball. This greatly increases the number of quality practice  
6 repetitions performed by each player.

7 The base mechanism allows the device to be portable. As  
8 such, the invention may be placed at or near the volleyball  
9 net to provide the most realistic game scenario, or, may be  
10 placed away from the net where players can concentrate on the  
11 fundamentals. This feature is important because it allows  
12 practice sessions to be conducted at various locations and  
13 allows separate practice groups to focus on different aspects  
14 of the game. Because the invention places a volleyball in the  
15 optimum spiking position, it is particularly useful for  
16 allowing repeated evaluation and scrutiny of a players  
17 technique; particularly with respect to arm swing, extension,  
18 approach, jumping, proper footwork, and proper blocking  
19 techniques. Also, the present invention provides an effective  
20 aid for teaching correct body position in relation to the ball  
21 upon impact.

22 The present invention provides an improvement in  
23 volleyball practice efficiency. Traditional volleyball

1 practice, and practice with products known in the art, cannot  
2 even closely match the benefits offered by the present device.  
3 As mentioned, the present device allows lines of players to  
4 practice at one time, further, the device allows both  
5 offensive and defensive lines to practice simultaneously. As  
6 such, players perform many more repetitions than they would  
7 otherwise. Also, the arrangement of the volleyballs allows  
8 coaches to carefully scrutinize performing players techniques.  
9 That is, because coaches save time by not manipulating or  
10 shagging practice balls, they can spend more time on coaching.  
11 The mobility of the present device allows players to divide  
12 into separate groups and focus on specific techniques. For  
13 instance, separate devices of the present invention may be  
14 placed in different practice areas, so that smaller groups of  
15 players can focus on different aspects of the game.

16 Finally, the present invention is cost-effective. This  
17 feature provides access to players who may normally not have  
18 the means to practice. For instance, players that cannot  
19 afford to be a part of club teams may purchase this product to  
20 practice essential volleyball skills. Also, this cost-  
21 effective feature allows for easy employment of more than one  
22 device, greatly improving the efficiency in large-scale  
23 practice sessions.

1           The importance of the invention rests upon the fact that  
2           it is highly advantageous for a player to be able to practice  
3           under realistic, simulated conditions. In that way, the  
4           players may repeat the different techniques necessary to  
5           participate in the game and be closely evaluated by coaches  
6           during the process.

#### 7                           BRIEF DESCRIPTION OF THE DRAWINGS

8           Figure 1 is a perspective view of the device of the present  
9           invention.

10          Figure 2 is side view of the device of the present invention.

11          Figure 3 is a front view of the device of the present  
12          invention.

#### 13                           DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

14          Referring to figure 1, the device of the present  
15          invention is generally designated by the reference numeral  
16          10. Device 10, in the preferred embodiment is constructed  
17          of a lightweight, yet stable metal, such as aluminum.  
18          However, any material of suitable strength may be used, in  
19          fact, it can be easily seen that successful embodiments of  
20          the present invention may be constructed of composite  
21          material such as polyvinyl chloride.

22          The topmost portion of device 10 is comprised of  
23          support beam 12. Support beam 12 is a substantially

1 horizontal beam that extends between vertical support beams  
2 14 and 16. In the preferred embodiment support beam 12 is  
3 welded to vertical beams 14 and 16 so as to form a single,  
4 modular piece, attached to a base mechanism 50.

5 Importantly, alternative embodiments allow the height of  
6 support beam 12 to be adjusted in more than one fashion.

7 For example, support beam 12 may rest on a set of brackets  
8 extending from each vertical support beam where each bracket  
9 is placed incrementally in increasing height relative to the  
10 ground. In such case, support beam 12 may be manually  
11 placed on any pair of matching brackets so as to  
12 incrementally adjust its height.

13 Also, other embodiments allow height adjustment to come  
14 from changing the length of each vertical support beam. For  
15 instance, each vertical support beam may consist of an  
16 inner-piece and an outer piece whereby the inner piece  
17 slides within the outer piece so as to shorten or extend the  
18 overall length of each vertical support beam. This  
19 embodiment allows the user of the device to manually slide  
20 the inner piece along the outer piece and then secure each  
21 piece in a fixed position relative to one another. In such  
22 case, the inner piece may be held in a fixed position  
23 relative to the outer piece by some securing means such as a

1 clamp, or a pin, that is secured to and extends between both  
2 sides of each inner and outer piece.

3 Finally, support beam 12, in another embodiment, rests  
4 atop vertical beams 14 and 16 and may be slidably adjusted  
5 between the two. That is, the distance between vertical  
6 support beams 14 and 16 may be adjusted according to  
7 available space constraints of the practice area and the  
8 number of desired players to practice at a time.

9 Support beam 12 serves to secure a plurality of  
10 volleyball stabilization mechanisms. As will become  
11 apparent from the specification and drawings to follow, such  
12 stabilization mechanisms are ultimately responsible for  
13 restraining the suspended volleyballs to a confined area  
14 relative to support beam 12. As shown in figure 1, the  
15 preferred embodiment of the present invention contains two  
16 volleyball support mechanisms designated by numerals 18 and  
17 20. Stabilization mechanisms 18 and 20 serve to prevent the  
18 volleyballs from becoming tangled or wrapped around the  
19 apparatus upon impact. In the preferred embodiment,  
20 stabilization mechanisms 18 and 20 are comprised of circular  
21 frames extending in a uniform, planar direction that is  
22 substantially parallel to the plane of the playing surface.  
23 Stabilization mechanisms 18 and 20 may also serve as a

1 storage apparatus for excess cable or material extending to  
2 the suspended volleyballs.

3 In the preferred embodiment, stabilization mechanisms  
4 18 and 20 are permanently attached to support beam 12. This  
5 is done so that the entire structure, aside from a base  
6 mechanism, is contained as a uniform structure. However,  
7 alternative embodiments of the present invention allow for  
8 stabilization mechanisms 18 and 20 to be reversibly attached  
9 to support beam 12 using attachment means 22 and 24.  
10 Attachment means 22 and 24 may be any form of simple  
11 attachment such as any standard nut and bolt apparatus, of a  
12 series of clamps or fastening means used to secure the  
13 position of stabilization mechanisms 18 and 20. Such  
14 attachment means allows for the removal and replacement of  
15 stabilization mechanisms 18 and 20 at virtually any position  
16 along support beam 12 so as to allow for the rearrangement  
17 of a plurality of such stabilization mechanisms along beam  
18 12.

19 Said stabilization mechanism may be housed within  
20 covers 26 and 28 (not shown). Covers 26 and 28 snugly  
21 surround the form of the stabilization mechanisms and  
22 further aid in preventing entanglement of the volleyball  
23 upon impact, storing of access cable material, and

1 protection of attachment means. In the preferred embodiment  
2 covers 26 and 28 are comprised of a flexible material such  
3 as canvas. While beneficial, covers 26 and 28 are not  
4 essential to the practice of device 10.

5 The preferred embodiment of the present invention is  
6 further comprised of connecting means tubes 30 and 32, which  
7 extend in a substantially downward direction from  
8 stabilization mechanisms 18 and 20. Each connecting means  
9 tube is attached at its top end to support beam 12. As  
10 shown in figure 1, the bottom end of connecting means tube  
11 30 and 32 each contain semi-circular crooks 34 and 36, to  
12 which connection means 38 and 40 are attached.

13 In another embodiment of the present invention,  
14 connection means tube 30 and 32 is a hollow tube that  
15 encloses and guides connecting means 38 and 40. In this  
16 embodiment, each connecting means tube is attached at its  
17 top end to each stabilization mechanism to serve as a  
18 stationary conduit for each connecting means. Each  
19 connecting means is attached at its distal end to each  
20 stabilization mechanism at the top end of each connection  
21 means tube.

22 Yet in another embodiment of the present invention,  
23 connection means tube 30 and 32 are not included.

1 Connection means 38 and 40 are simply attached, at their  
2 distal end, to each stabilization mechanism and, at their  
3 proximate end, to the dangling volleyballs.

4 Connection means 38 and 40 may take on several forms in  
5 successful embodiments of the present invention. In  
6 accordance with desired performance or reaction, connection  
7 means 38 and 40 may be some elastic, non-elastic, semi-  
8 rigid, or rigid material that serves to connect the dangling  
9 volleyballs and the apparatus of the present invention.  
10 However, in the preferred embodiment, each connection means  
11 is a semi-elastic material that allows volleyballs to track  
12 a true trajectory upon impact. This type of connection  
13 means allows the offensive player to observe the resultant  
14 ball path from the spike and further allows a defensive  
15 player to react to an accurate ball flight produced from the  
16 spike. This allows for practice under game-like conditions.  
17 Another benefit associated with such a connection means is  
18 the relatively fast time in which the ball returns to its  
19 resting position, allowing for a succession of repetitions  
20 to be quickly performed.

21 Each vertical support beam is attached to a  
22 corresponding support base. As shown in figure 1, vertical  
23 support beams 14 and 16 are attached, at their bottom end,

1 to support bases 50 and 52, respectively. In the preferred  
2 embodiment, each support base is comprised of a  
3 substantially planar support piece whereby the bottom end of  
4 each vertical support beam is attached to support piece top  
5 surface 56. Each support base is further comprised of  
6 support piece bottom surface 58. In the preferred  
7 embodiment a plurality of wheels mechanisms 60 are mounted  
8 to support piece bottom surface 58 so as to enable the  
9 apparatus of the present device to be mobile. Wheel  
10 mechanisms 60 may be any standard wheel and mount unit  
11 sufficient to withstand the weight of the apparatus.

12 The preferred embodiment also contains apparatus  
13 stabilization means 70. In the preferred embodiment,  
14 apparatus stabilization means 70 consists of a series of  
15 weights 72 secured by vertical support pin 74 extending  
16 upwards from support piece top surface 56. However, other  
17 apparatus stabilization means may consists of a plurality of  
18 suction devices attached to support piece bottom surface 58.  
19 Yet another embodiment may include an apparatus  
20 stabilization means consisting of a lock pin which forcibly  
21 rests against wheel mounts 60 so as to frictionally resist  
22 movement of the apparatus.  
23